

## Catalogue of American Amphibians and Reptiles.

DUELLMAN, WILLIAM E. 1968. *Smilisca cyanosticta*.*Smilisca cyanosticta* (H. M. Smith)  
Blue-spotted smilisca*Hyla phaeota cyanosticta* H. M. Smith, 1953:150. Type-locality, "Piedras Negras, Petén, Guatemala" [elevation = 100 meters]. Holotype, U. S. Natl. Mus. 111147, adult male collected by Hobart M. Smith, 28 May 1939 (examined by author).*Smilisca phaeota* [*cyanosticta* by fiat]: Starrett, 1960:303. Transfer of *H. phaeota cyanosticta* Smith to *Smilisca*.*Smilisca cyanosticta*: Duellman and Cole, 1965:141. Undocumented recognition of *S. cyanosticta* (Smith) as a species distinct from *S. phaeota* (Cope).

- CONTENT. No subspecies are recognized.

- DEFINITION AND DIAGNOSIS. A moderately large *Smilisca*—males attain snout-vent lengths of 56 mm, and females reach maximum snout-vent lengths of 70 mm. The snout is not noticeably short and is rounded in dorsal profile. The hind limbs are long; the tibia length usually is more than 52% of the snout-vent length. The diameter of the tympanum usually is more than two-thirds that of the eye. The tarsal fold is well developed and extends the full length of the tarsus. The inner metatarsal tubercle is large, low, flat, and elliptical. The fingers are about one-half webbed, and the toes are four-fifths webbed. The skull is as long as wide and has a large frontoparietal fontanelle, and narrow supraorbital flanges with irregular margins anteriorly. The squamosal is large and in contact with the maxillary. In life the venter is creamy white; the dorsum is pale green to tan with olive green or dark brown spots or blotches on the body and transverse bands on the limbs. The loreal region is pale green, and the edge of the upper lip is silvery white. A narrow pale bronze-colored stripe extends along the canthus and edge of the upper eyelid to a point above the tympanum; this stripe is bordered below by a narrow dark brown stripe from the nostril to the eye and broad dark brown postorbital mark encompassing the tympanum and terminating above the insertion of the forearm. The flanks are dark brown with pale blue or green spots, and the anterior and posterior surfaces of the thighs are dark brown with small pale blue spots. The iris is golden or bronze above and brown below. In breeding males the throat is dark brown with white flecks.

Tadpoles have tails slightly less than twice the length of the body with moderately deep fins. The dorsum of the body is dark brown; the caudal musculature is creamy white with interconnected brown spots. The mouth is situated anteroventrally. The median part of the upper lip is bare; the rest of the mouth is bordered by a single row of papillae.

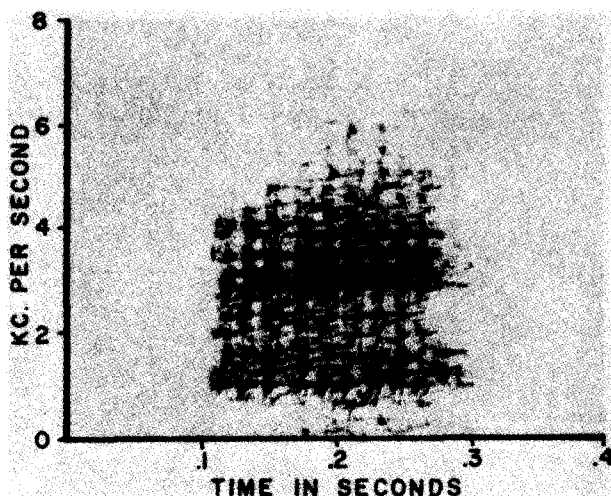


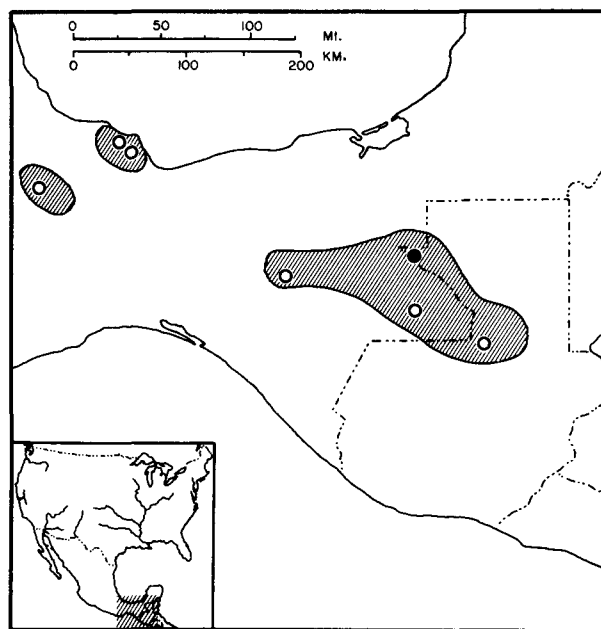
FIGURE. Audiospectrogram (narrow band, 40 cycles per second) of the mating call of *Smilisca cyanosticta*: Oaxaca, Mexico, 28 June 1964, air 21.3°C. (Univ. Kansas Mus. Nat. Hist. Tape No. 373; specimen No. 87203.)

The presence of blue spots on the flanks and thighs in combination with the silvery-white labial stripe and dark brown postorbital mark distinguishes *S. cyanosticta* from other Middle American hylids. *Smilisca sila* has blue spots on the flanks and thighs, but it has a short, truncate snout, a smaller size (males 45 mm; females 62 mm), and lacks the continuous labial stripe and dark postorbital mark. Some *S. sordida* also have small blue spots on the flanks and thighs, but this species can be readily distinguished from *S. cyanosticta* in lacking the labial stripe and postorbital mark. *Smilisca phaeota* is similar to *S. cyanosticta* in size, proportions, and coloration, except that *S. phaeota* lacks blue spots on the flanks and thighs. Faded specimens can be identified by probing the lateral edge of the frontoparietals; large posterolaterally projecting supraorbital flanges are present in *S. phaeota*, whereas the flanges are narrow and not projecting in *S. cyanosticta* (see Duellman and Trueb, 1966, fig 8). The tadpoles of *S. cyanosticta* are distinctive in having one row of labial papillae and in the dorsal fin not extending onto the body. In the other species of *Smilisca* having short tails and anteroventral mouths (*baudinii*, *phaeota*, and *puma*) the dorsal fin extends anteriorly onto the body. Furthermore, *S. baudinii* and *S. puma* have two rows of labial papillae.

- DESCRIPTIONS. A description of adults from Piedras Negras, El Petén, Guatemala, was given by Smith (1953). Pyburn (1966) provided a detailed account of the eggs, tadpoles, and young from Los Tuxtlas, Veracruz, México. Duellman and Trueb (1966) presented detailed descriptions of adults, juveniles, tadpoles, osteological features, and the breeding call. The breeding call consists of one or two moderately short vibrant notes—"waunk." Each note has a duration of 0.25 to 0.45 seconds and is repeated at intervals of one-half minute to several minutes. The notes have 110 to 180 pulses per second and major frequencies of 480 to 975 and 1600 to 2100 cycles per second.

- ILLUSTRATIONS. A color photograph of an adult was provided by Pyburn (1966), who also illustrated tadpoles and a juvenile in black and white. Duellman and Trueb (1966) included a photograph of an adult, drawings of the skull, tadpoles, hands, feet, and lateral view of the head, and an audio-spectrogram.

- DISTRIBUTION. *Smilisca cyanosticta* is known from humid evergreen forests on the Atlantic slopes of southeastern México and northern Central America from the Sierra de Juárez in northern Oaxaca and the Sierra de Los Tuxtlas in southern



MAP. The solid symbol marks the type-locality; hollow symbols indicate other known localities. The estimated range is shaded.

Veracruz through northern Chiapas in México and into El Petén and northern Alta Verapaz, Guatemala. Lynch and Fugler's (1965:12) record of this species in Honduras was based on specimens of *Smilisca baudinii*. The distribution apparently is discontinuous. Isolated populations are known from elevations of 830 to 900 meters in the Sierra de Juárez, Oaxaca, and from elevations of 300 to 1200 meters in the Sierra de Los Tuxtlas, but the species apparently is absent from the intervening lowlands characterized by drier forest. Likewise, it is absent from the Gulf lowlands of the Isthmus of Tehuantepec, but eastward in the more humid lowland forests of northern Chiapas and El Petén it occurs at elevations below 100 meters.

• **FOSSIL RECORD.** None.

• **PERTINENT LITERATURE.** The breeding activity and life history are discussed by Pyburn (1966); Duellman and Trueb (1966) presented a detailed discussion of the morphology, relationships, life history, and distribution.

• **REMARKS.** Duellman and Trueb (1966) demonstrated, principally on the basis of comparative cranial osteology and differences in breeding calls, that *S. cyanosticta* was specifically distinct from *S. phaeota*, with which *cyanosticta* previously had been considered conspecific. The cranial differences are summarized as follows—*S. phaeota*: nasals widest anteriorly, not attached to sphenethmoid; frontoparietal fontanelle absent; supraorbital flanges large with straight edges and extending posterolaterally; squamosal not in contact with maxillary. *S. cyanosticta*: nasals widest posteriorly, attached to sphenethmoid; frontoparietal fontanelle large; supraorbital flanges narrow with irregular margins anteriorly; squamosal in contact with maxillary. The calls differ principally in pitch; that of *S. cyanosticta* has emphasized frequencies at 480–975 and 1600–2100 cycles per second, whereas *S. phaeota* has only one emphasized frequency between 330 and 495 cycles per second.

Juveniles lack the blue spots on the flanks and thighs characteristic of the adults. Duellman and Trueb (1966) noted that the ontogenetic changes in coloration were "(1) flanks pale tan and thighs orange-yellow, both lacking spots, (2) flanks pale tan and thighs red, lacking spots, and (3) flanks dark brown with blue spots and thighs red, lacking spots, and (4) flanks and thighs dark brown, both having blue spots."

Duellman and Trueb (1966) reported that this species probably deposited eggs in loose clumps in pools or quiet streams. Pyburn (1966) reported finding surface-film egg masses in pools in forks of trees, depressions in logs and in pools on the ground.

The vernacular name, blue-spotted smilisca, is proposed in allusion to the characteristic blue spots on the flanks and thighs.

• **ETYMOLOGY.** The name *cyanosticta* refers to the blue spots on the flanks and thighs and is derived from the Greek *kyanos* meaning dark blue and *stiktos* meaning spotted.

**COMMENT**

The two most comprehensive papers on this species, those by Pyburn (1966) and by Duellman and Trueb (1966), were based on completely independent studies. Pyburn was concerned solely with *S. cyanosticta* and based his phylogenetic conclusions on personal acquaintance with only that species, which he treated as a subspecies of "*Hyla phaeota*," although he suggested that *cyanosticta* might be distinct from *phaeota*. In their comprehensive paper on the genus *Smilisca*, Duellman and Trueb (1966) based their phylogenetic conclusions on a survey of the biology of six species. Their data supporting the specific rank of *S. cyanosticta* are summarized in the foregoing section on Remarks.

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